

STAT 515 Statistical Methods I

Spring 2026

Dr. Karl Gregory

Class times: 10:05 - 11:20 pm Tuesdays and Thursdays in Close-Hipp 502

Office hours: 1:00 - 2:00 pm Monday and Wednesday and 9:00 - 10:00 am Thursdays in LeConte College 216C. Note that I am always free to hang around after class for several minutes!

Bulletin description: Applications and principles of elementary probability, essential discrete and continuous probability distributions, sampling distributions, estimation, and hypothesis testing. Inference for means, variances, proportions, one-way ANOVA, simple linear regression, and contingency tables. Statistical packages such as SAS or R.

Prerequisites: A grade of C or higher in MATH 122 or MATH 141; or both MATH 111 or higher and any statistics class.

Textbook: None.

Course website: All course materials will be posted on the course website at https://people.stat.sc.edu/gregorkb/STAT_515_sp_2026/STAT_515_sp_2026.html.

Topics covered: By the end of the course, students should be able to

- Use basic set theory, probability rules, and counting rules,
- Explain what a random variable is
- Remember common discrete and continuous probability distributions and their properties.
- Explain the concept of a sampling distribution.
- Appreciate the Central Limit Theorem and understand its usefulness.
- Perform basic sample size calculations.
- Make confidence intervals for population means or proportions.
- Test for differences between the means and proportions of two populations.
- Formulate null and alternative hypotheses for statistical hypothesis testing.
- Explain what a p-value is and how to interpret it.
- Perform simple linear regression.
- Perform one-way analysis of variance (ANOVA).
- Test for an association between categorical variables.

Grading:

1. First midterm exam (Thursday, Feb 19th): 25%
2. Second midterm exam (Tuesday, Apr 7th): 25%
3. Final Exam (Tuesday, May 5th, 9:00 am): 25%
4. Homework (10 assignments): 25%
5. Attendance: 5% bonus

Homework must be uploaded to blackboard as a pdf (you may scan handwritten documents). The lowest homework score will be dropped. Attendance will not regularly be taken, but on several days during the semester we will collect data in class. Being in class on these days will

count towards your attendance bonus. If your final exam score is higher than the lower of your two midterm exam scores, your final exam score will replace that midterm exam score in the calculation of your course grade.

The thresholds 90%, 87%, 80%, 77%, 70%, 67%, and 60% must be met to earn an A, B+, B, C+, C, D+, or D, respectively. Students not meeting the 60% threshold will receive an F.

Statement on the use of AI: As in-class, no-AI exams are worth 75% of your course grade, doing the homework assignments without AI assistance is essential to your preparation for the exams.

Honor code: See the Carolinian Creed in the Carolina Community: Student Handbook & Policy Guide. Violations of the USC Honor Code may result in a 0 for the work in question, and, in accordance with University policy, other punishments up to and including expulsion from the University.

Accommodations: If you require special accommodations they must be arranged in advance through the Office of Student Disability Services in Suite 102 of Close-Hipp, 803-777-6142, **SADRC@mailbox.sc.edu**.